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Lin et al.

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(54) **DIODES WITH MULTIPLE JUNCTIONS**

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See application file for complete search history.

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(57) **ABSTRACT**

A diode includes a semiconductor substrate having a surface; a first contact region disposed at the surface of the semiconductor substrate and having a first conductivity type; and a second contact region disposed at the surface, laterally spaced from the first contact region, and having a second conductivity type. The diode also includes a buried region disposed in the semiconductor substrate vertically adjacent to the first contact region, having the second conductivity type, and electrically connected with the second contact region; and an isolation region disposed at the surface between the first and second contact regions. The diode also includes a separation region disposed at the surface between the first contact region and the isolation region, the separation region formed from a portion of a first well region disposed in the semiconductor substrate that extends to the surface.

15 Claims, 15 Drawing Sheets

